

# SUMMARY OF CHANGES TO SHELL OIL SHALE RD&D ENVIRONMENTAL ASSESSMENT

## DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVE

### Page 4, par.1 – Description of Proposed Action and Alternative

*Language was changed to include Plan of Development.*

**Original Text:** BLM proposes leasing three 160-acre tracts located approximately 20 miles west-northwest of Rio Blanco, Colorado and authorizing associated Plans Of Operation for an oil shale RD&D project that consists of three oil shale extractive technologies. The RD&D project will be phased to ensure that the current oil shale extractive technologies are fine-tuned to operate at economic and environmentally acceptable levels before conversion to commercial operations will be authorized on public lands.

**Revised text:** BLM proposes leasing three 160-acre tracts located approximately 20 miles west-northwest of Rio Blanco, Colorado and requiring the applicant to submit, as a standard lease term, a Plan of Development for an oil shale RD&D project. The RD&D project will be phased to ensure that the current oil shale extractive technologies are fine-tuned to operate at economic and environmentally acceptable levels before conversion to commercial operations will be authorized on public lands.

## AIR QUALITY

### Page 17, par.2 – Environmental Consequences of the Proposed Action – Sites 1, 2, and 3

#### Impact Types and Criteria

*Clarification was added on phasing of the three Shell sites.*

**Original Text:** The air quality impact assessment was based on the best available engineering data and assumptions, meteorological data, and EPA dispersion modeling procedures, as well as professional engineering and scientific judgment. However, where specific data or procedures were not available, reasonable but conservative assumptions were incorporated. For example, the air quality impact assessment assumed that project activities would operate at full production levels continuously (no “down time”). Therefore, this NEPA analysis assumes a development scenario which is not likely to actually occur.

**Revised Text:** The air quality impact assessment was based on the best available engineering data and assumptions, meteorological data, and EPA dispersion modeling

procedures, as well as professional engineering and scientific judgment. However, where specific data or procedures were not available, reasonable but conservative assumptions were incorporated. For example, the air quality impact assessment assumed that all three sites would be constructed and drilled concurrently, whereas, a maximum of two would be concurrent, and the drilling would follow the surface construction. The same is true with the production phase. Therefore, this NEPA analysis assumes a development scenario which will not actually occur.

## **Page 18, par.2 and 3 – Potential Direct Impacts from the Proposed Action**

### **Construction Direct Impacts**

*Clarification was added on source of particulate matter and constituents modeled during the dispersion modeling.*

**Original Text:** Air quality impacts would occur during construction (due to surface disturbance by earth-moving equipment, vehicle traffic fugitive dust, drilling rigs, facility construction, and vehicle engine exhaust) and production (including water and product pumping, processing, and engine exhausts). The maximum predicted “near-field” air pollutant concentrations occur close to and between the three test sites; so close to each other that cumulative impacts from other facilities would not significantly increase the maximum predicted “near-field” concentration.

Air pollutant dispersion modeling was performed to quantify potential reasonable, but conservative, PM<sub>10</sub> and SO<sub>2</sub> impacts during construction based on the individual pollutant’s period of maximum potential emissions. The model conservatively assumed that all three test sites would be constructed concurrently. Short-term impacts are reported as maximum high-second-high values. Maximum potential near-field particulate matter emissions from traffic on unpaved roads and during construction were used to predict the maximum 24-hour and annual average PM<sub>10</sub> concentrations. Maximum air pollutant emissions would be temporary (i.e., occurring only during construction period). The amount of particulate matter emissions during construction would be controlled by watering or applying chemical surfactants to disturbed soils, and by air pollutant emission limits imposed by applicable air quality regulatory agencies. No additional dust control efficiency for use of suppressants was assumed for purposes of estimating the dust emissions from these activities. Actual air quality impacts depend on the amount, duration, location, and characteristics of potential emissions sources, as well as meteorological conditions (wind speed and direction, precipitation, relative humidity, etc.).

**Revised text:** Air quality impacts would occur during facility construction (due to surface disturbance by earth-moving equipment, vehicle traffic fugitive dust, facility construction, and vehicle engine exhaust) and drilling (drilling fugitives, rig engine exhaust, compressor engine exhaust). The maximum predicted “near-field” air pollutant concentrations occur close to and between the three test sites; so close to each other that cumulative impacts from other facilities would not significantly increase the maximum predicted “near-field” concentration.

Air pollutant dispersion modeling was performed to quantify potential reasonable, but conservative, PM<sub>10</sub>, CO, PM<sub>2.5</sub>, NO<sub>x</sub>, and SO<sub>2</sub> impacts during construction based on the individual pollutant's period of maximum potential emissions. The model conservatively assumed that all three test sites would be constructed concurrently, whereas Shell will construct a maximum of two concurrently. It also assumes that facility surface construction and drilling will take place concurrently, whereas they will be sequential. Short-term impacts are reported as maximum high-second-high values. Maximum potential near-field particulate matter emissions from traffic on unpaved roads and during construction were used to predict the maximum 24-hour and annual average PM<sub>10</sub> concentrations. Maximum air pollutant emissions would be temporary (i.e., occurring only during construction period). The amount of particulate matter emissions from access and site roads during construction and drilling would be controlled by watering or applying chemical palliatives to the roads, and by air pollutant emission limits imposed by the permitting agency, which in this case would be CDPHE. No emission credit was assumed for road dust control in the estimate of dust emissions from these activities. Actual air quality impacts depend on the amount, duration, location, and characteristics of potential emissions sources, as well as meteorological conditions (wind speed and direction, precipitation, relative humidity, etc.).

#### **Page 20, Subalternative-Proposed Action with Mitigation – Sites 1,2, and 3**

*Mitigation language was added; also added to mitigation table at end of EA.*

- Mitigate fugitive dust emissions using erosion control measures, and control dust during construction, wind events and stockpiles, as necessary.

#### **MIGRATORY BIRDS**

#### **Page 31, par.2 and 3 – Environmental Consequences of the Proposed Action**

*Language was added on cuttings management pits and clarification on migratory waterfowl.*

**Original Text:** The proposed reserve pits in the project area are expected to attract waterfowl and other migratory birds for purposes of resting, foraging, or as a source of free water. It has recently been brought to the WRFO's attention that migratory waterfowl, including teal and gadwall, have contacted oil-based drilling fluids stored in reserve pits during or after completion operations resulting in mortality to these individuals which is in violation of the MBTA. The extent and nature of the problem is not well defined, but is being actively investigated by BLM and the companies pursuing RD&D leases. Until the specific cause of mortality is better understood, management measures must be conservative and aimed at prevention of bird contact with produced water and drilling and completion fluids that may be harmful to birds (e.g., through acute or chronic toxicity or loss of insulation).

The only “reserve” drilling pit for the area is the single pit known as the “cuttings pit,” and it will be a dry pond. All pits that will contain produced water will require mitigation to exclude migratory birds from the pits.

**Revised text:** The only drilling pit for the area is the single pit known as the “cuttings management pit,” and it will be a dry pond. All pits that will contain produced water will require mitigation to exclude migratory birds from the pits.

The proposed cuttings management pits in the project area may attract waterfowl and other migratory birds for purposes of resting, foraging, or as a source of free water. Migratory waterfowl, including teal and gadwall, have contacted oil-based drilling fluids stored in reserve pits during or after completion operations resulting in mortality to these individuals. The extent and nature of the problem is not well defined, but is being actively investigated by BLM and the companies pursuing RD&D leases. Until the specific cause of mortality is better understood, management measures must be conservative and aimed at prevention of bird contact with produced water and drilling and completion fluids that may be harmful to birds (e.g., through acute or chronic toxicity or loss of insulation).

**Page 33, all bullets - Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

*The BLM No Surface Occupancy (NSO) requirements were clarified.*

**Original Text:** Under this alternative, in addition to the Proposed Action, BLM would require the following mitigation to ensure impacts to migratory birds would be minimized by implementation:

- Conduct pre-construction migratory bird surveys in the nesting season to locate active nests within the test sites.
- If the project initiation and construction is delayed until February 1, 2007, then a new survey for nesting raptors will be required prior to project initiation. Shell would be responsible for a qualified biologist to conduct migratory bird surveys. BLM does not specify survey protocol, but at a minimum, surveys would provide estimates of migratory bird species abundance and density.
- No surface occupancy will be allowed within 1/2 mile of active nests of threatened, endangered, or BLM sensitive species of migratory birds, including raptors, from February 1 through August 15 (1/8 mile for all non-listed migratory bird species). The BLM will be contacted and USFWS will be consulted if any special status species nests are discovered on or adjacent to the project area.
- Timing Limitation stipulations would be applied to active, non-Special Status raptor nests (i.e., those species not classified as listed, proposed, or candidate

species for listing under the ESA and non-BLM sensitive species). No development or construction-related activities would be allowed within 1/4 mile of identified nest(s) from February 1 through August 15.

- Migratory bird access to, or contact with, reserve pit contents that possess toxic properties from ingestion or exposure or have the potential to compromise the water-repellent properties of birds' plumage will be effectively precluded. Exclusion methods may include netting, the use of "bird-balls," or other alternative methods that effectively eliminate migratory bird contact with pit contents and meet BLM's approval. Shell will notify BLM of the method that will be used to eliminate migratory bird use two weeks prior to initiation of drilling activities. The BLM-approved method will be applied within 24 hours after drilling activities have begun. All lethal and non-lethal events that adversely affect migratory birds will be reported to a WRFO Petroleum Engineer Technician immediately.

**Revised text:** Under this alternative, in addition to the Proposed Action, BLM would require the following mitigation to ensure impacts to migratory birds would be minimized by implementation:

- Conduct follow-up surveys if construction activities do not begin prior to February 1, 2007.
- Minimize, where possible, vegetation clearing while migratory birds are nesting (February 1 through August 15).
- If reserve pits are deemed necessary on site, ensure that pits are lined, fenced on all four sides with net-wire, and covered with plastic barrier to exclude both large and small animals and netted to prevent birds from accessing these pits. Plastic flagging has proven to be ineffective at deterring migratory waterfowl from using reserve pits for foraging, resting or as a source of free water. The Operator will notify the BLM via Sundry Notice of the method that will be used to prevent impacts to migratory birds two weeks prior to the date when completion activities are expected to begin. The BLM-approved method will be applied within 24 hours after completion activities have begun.
- All lethal and non-lethal events that adversely affect migratory birds will be reported to a WRFO Petroleum Engineer Technician and Wildlife Biologist immediately.

No special status species are presently known to occur in the project area. If surveys reveal special status species to be present, Shell must comply with the following measures detailed in Appendix A of the White River Resource Area RMP (1997):

- No development activities are allowed within 1/2 mile of identified nest sites of listed, candidate, or BLM sensitive raptor species (except bald eagle and ferruginous hawk) from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31.

- No development activities allowed within 1/4 mile of identified nests of other special status raptor species from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31.
- No development is allowed within 1 mile of identified nests of ferruginous hawks from February 1 through August 15, or until fledging and dispersal of young. Development activities allowed from August 16 through January 31.
- No surface occupancy within 1/4 mile of an identified nest of an ESA listed, proposed, or candidate raptor species.
- No surface occupancy within 1/8 mile of an identified nest of other special status raptor species.

These mitigation measures can be exempted, modified, or waived by BLM if conditions warrant and the decision is documented through an environmental analysis. An exception would suspend the stipulation on a one time basis. Modifications would temporarily or permanently change the language or provision of a stipulation. Waivers are utilized to permanently remove the stipulation due to changed circumstances. Conditions for granting an exception, modification, or waiver are described in the Appendix A of the White River Resource Area RMP (1997).

**THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES**

**Page 36, table row 4 – Affected Environment**

*Information was added on the range of the greater sage grouse.*

**Original Text:**

**Special Status Wildlife Species Known to Occur in Rio Blanco County**

Common Name	Scientific Name	Status	Habitat	Potential to Occur at Test Sites		
				Site 1	Site 2	Site 3
<b>Birds</b>						
Greater sage-grouse	<i>Centrocercus urophasianus</i>	SC, BLM	Inhabits upland sagebrush shrubland in rolling hills and benches; nests and broods young in meadows near water. Winters in sagebrush shrubland in submontane habitats.	Potentially present; within the overall range and nesting/brood-rearing habitat present.	Unlikely; not known to occur in site vicinity.	Unlikely; not known to occur in site vicinity.

**Revised Text:**

**Special Status Wildlife Species Known to Occur in Rio Blanco County**

Common Name	Scientific Name	Status	Habitat	Potential to Occur at Test Sites		
				Site 1	Site 2	Site 3

**Special Status Wildlife Species Known to Occur in Rio Blanco County**

Common Name	Scientific Name	Status	Habitat	Potential to Occur at Test Sites		
				Site 1	Site 2	Site 3
<b>Birds</b>						
Greater sage-grouse	<i>Centrocercus urophasianus</i>	SC, BLM	Inhabits upland sagebrush shrubland in rolling hills and benches; nests and broods young in meadows near water. Winters in sagebrush shrubland in submontane habitats.	Potentially present; within the overall range and nesting/brood-rearing habitat present.	Unlikely; not known to occur in site vicinity.	Unlikely; not known to occur in site vicinity, but in overall range and adjacent to lek buffer zones.

**Page 39, new par. – Colorado Special Concern and BLM Sensitive Species**

*Information was added about the cutthroat trout.*

**Original Text:** None.

**Revised text:** Colorado River cutthroat trout are a state species of concern and a BLM sensitive species. Additionally, this fish species is covered by a Tri-State (Colorado, Wyoming, Utah) Conservation Agreement and Strategy. The cumulative small impacts to individual populations could have range-wide listing implications.

**Page 45, bullets – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

*The BLM NSO requirements were clarified.*

**Original Text:** In addition to the Proposed Action, impacts to special status species would be minimized by implementing the following mitigation measures:

- Conduct follow-up raptor surveys if construction activities do not begin prior to the 2007 raptor nesting season.
- Conduct surveys prior to construction activities to determine which species will require clearance surveys in the project area if construction occurs in spring of 2007.
- Enforce limitations on activities within a one-half mile radius of active nests of raptors that are threatened, endangered, or BLM sensitive between February 1 and August 15 (1/4 mile for other raptors) and consulting with USFWS if any special status species nests are discovered on or adjacent to the project area.
- Prevent vegetation clearing while migratory birds are nesting (February 1 through August 15).
- Ensure that reserve pits are lined, fenced on all four sides with net-wire and covered with plastic barrier to exclude both large and small animals and netted to

prevent birds from accessing these pits, and reclaiming the pits as soon as possible after use.

**Revised text:** In addition to the Proposed Action, impacts to special status species would be minimized by implementing the following mitigation measures:

- The Operator or Operator's proponent will conduct follow-up raptor surveys if construction activities do not begin prior to February 1, 2007.
- Conduct special status species surveys prior to construction activities to determine which species clearances may be needed if construction is planned to begin after April 1, 2007.
- If reserve pits are deemed necessary on site, ensure that pits are lined, fenced on all four sides with net-wire, and covered with plastic barrier to exclude both large and small animals and netted to prevent birds from accessing these pits.
- Reclaim reserve pits as soon as possible after use.
- Adhere to the requirements of USFWS Biological Opinion and the Colorado River Fish Species recovery program.

**Page 45, par.4 – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and**

**BLM Sensitive Species  
Northern Goshawk**

*The BLM NSO requirements were clarified*

**Original Text:** Annual pre-construction surveys would be conducted for the duration of construction, between February 1 and August 15, to locate active goshawk nests in or adjacent to each site and access road by a BLM approved biologist using BLM survey protocol.

At Site 3, a goshawk nest has been seen approximately 600 feet north of the northern boundary. Prior to development of Site 3, this location should be observed again. If the nest is active, construction and operation activities would not occur within 1/2-mile of the active goshawk nest between February 1 and August 15 or until young have fledged. Additionally, no surface occupancy (NSO) would occur within 1/4-mile of an active northern goshawk nest between February 1 and August 15. However, due to the steep topography of the northwest portion of Site 3, Shell would not be using the northwest corner of the 160-acre test site. Therefore, the closest operations would be an estimated 1/2-mile from the nest site. A BLM biologist would assess the goshawk nest prior to operations on Site 3.

**Revised text:** At Site 3, a goshawk nest has been seen approximately 600 feet north of the northern boundary. However, due to the steep topography of the northwest portion of Site 3, Shell would not be using the northwest corner of the 160-acre test site. Therefore, the closest operations would be an estimated 1/2-mile from the nest site. A BLM biologist would assess the goshawk nest prior to operations on Site 3.

If surveys reveal special status species to be present, including the northern goshawk, Shell must comply with the following measures detailed in Appendix A of the White River Resource Area RMP (1997):

- No development activities are allowed within 1/2 mile of identified nest sites of listed, candidate, or BLM sensitive raptor species (except bald eagle and ferruginous hawk) from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31.
- No development activities allowed within 1/4 mile of identified nests of other special status raptor species from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31.
- No development is allowed within 1 mile of identified nests of ferruginous hawks from February 1 through August 15, or until fledging and dispersal of young. Development activities allowed from August 16 through January 31.
- No surface occupancy within 1/4 mile of an identified nest of an ESA listed, proposed, or candidate raptor species.
- No surface occupancy within 1/8 mile of an identified nest of other special status raptor species.

These mitigation measures can be exempted, modified, or waived by BLM if conditions warrant and the decision is documented through an environmental analysis. An exception would suspend the stipulation on a one time basis. Modifications would temporarily or permanently change the language or provision of a stipulation. Waivers are utilized to permanently remove the stipulation due to changed circumstances. Conditions for granting an exception, modification, or waiver are described in the White River Resource Area RMP.

## **THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES**

### **Page 47, par.3 – Affected Environment**

*Language was added about the Greystone survey.*

**Original Text:** This section presents federally-listed threatened, endangered, and candidate plant species and species listed as “sensitive” by BLM. Threatened, endangered, and BLM Sensitive plant species known to occur in northwest Colorado are listed in the following table (BLM 2000). All of these species are considered rare by the Colorado Natural Heritage Program. The majority of species on this list are associated with the Green River Formation. Others are known from the area but may not have such specific habitat requirements. A pedestrian survey was conducted in March 2006 by WestWater Engineering to verify presence or absence of federally listed plant species.

**Revised text:** This section presents federally-listed threatened, endangered, and candidate plant species and species listed as “sensitive” by BLM. Threatened, endangered, and BLM Sensitive plant species known to occur in northwest Colorado are listed in the following table (BLM 2000). All of these species are considered rare by the

Colorado Natural Heritage Program. The majority of species on this list are associated with the Green River Formation. Others are known from the area but may not have such specific habitat requirements. A pedestrian survey was conducted in March 2006 by WestWater Engineering to verify presence or absence of federally listed plant species; none were found in the proposed sites. Greystone Environmental Consultants conducted biological investigations at the three test sites in May 2006 and likewise identified no sensitive plant species (Greystone 2006).

## **WASTES, HAZARDOUS OR SOLID**

### **Page 53, last par. – Environmental Consequences of the Proposed Action – Sites 1, 2, and 3**

*Language was added on spill protection.*

**Original Text:** The process of producing hydrocarbons from the oil shale would require processing and treatment of multiple materials. The production complex would include a refrigeration facility, a nahcolite recovery process (at Site 2), groundwater reclamation facility, and a hydrocarbon processing facility. Spill Prevention, Control and Countermeasure (SPCC) Plans and BMPs would need to be implemented for each stage of production and all processing facilities to ensure that no materials are inadvertently released to the outside environment. Additionally, all waste byproducts from the site would need to be properly transported and disposed of according to all rules and regulations regarding the specific waste byproduct. These waste byproducts would include, but would not be limited to, Bio-Solids Effluent and Reverse Osmosis Reject Effluent.

**Revised text:** The process of producing hydrocarbons from the oil shale would require processing and treatment of multiple materials. The production complex would include a refrigeration facility, a nahcolite recovery process (at Site 2), groundwater reclamation facility, and a hydrocarbon processing facility. Spill Prevention, Control and Countermeasure (SPCC) Plans and BMPs would need to be implemented for each stage of production and all processing facilities to ensure that no materials are inadvertently released to the outside environment. All spills must be reported to the CDPHE environmental release and incident reporting line at (877) 518-5608. Additionally, all waste byproducts from the site would need to be properly transported and disposed of according to all rules and regulations regarding the specific waste byproduct. These waste byproducts would include, but would not be limited to, Bio-Solids Effluent and Reverse Osmosis Reject Effluent.

### **Page 55, last par. – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

**Original Text:** BMPs would be required to ensure that wastes will not be released to the outside environment. The appropriate SPCC Plans would be designed so that each facility has the appropriate containment and countermeasures in place. Solid or hazardous waste would be removed from the test sites according to the necessary procedures associated with the type of waste. Any unforeseen waste exposure to the

outside environment would need to be addressed and proper mitigation will be implemented, but at this time no waste exposures are anticipated.

**Revised text:** BMPs would be required to ensure that wastes will not be released to the outside environment. The appropriate SPCC Plans would be designed so that each facility has the appropriate containment and countermeasures in place. All spills must be reported to the CDPHE environmental release and incident reporting line at (877) 518-5608. Solid or hazardous waste would be removed from the test sites according to the necessary procedures associated with the type of waste. Any unforeseen waste exposure to the outside environment would need to be addressed and proper mitigation will be implemented, but at this time no waste exposures are anticipated.

## **WATER QUALITY, SURFACE WATER AND GROUNDWATER**

### **Page 57, par. 2 – Affected Environment – Sites 1, 2, and 3**

#### **Surface Water**

*Changed a typo; from three parameters to four parameters.*

**Original Text:** The “Status of Water Quality in Colorado –2006” (CDPHE 2006b) and Regulation No. 37 Classifications and Numeric Standards for Lower Colorado River Basin (CDPHE 2006c) were reviewed for information relating to drainages within the project area ... For those waters, only the protection specified in each reach will apply. For this reach, minimum standards for three parameters have been listed. These parameters are: dissolved oxygen = 5.0 milligrams per liter (mg/l), pH = 6.5 - 9.0, and Fecal Coliform = 2,000/100 milliliters (ml) and 630/100 ml E. coli. ...

**Revised text:** The “Status of Water Quality in Colorado –2006” (CDPHE 2006b) and Regulation No. 37 Classifications and Numeric Standards for Lower Colorado River Basin (CDPHE 2006c) were reviewed for information relating to drainages within the project area ... For those waters, only the protection specified in each reach will apply. For this reach, minimum standards for four parameters have been listed. These parameters are: dissolved oxygen = 5.0 milligrams per liter (mg/l), pH = 6.5 - 9.0, and Fecal Coliform = 2,000/100 milliliters (ml) and 630/100 ml E. coli. ...

### **Page 58, last par. – Surface Water**

*Clarified that the constituent was TDS.*

**Original Text:** Water quality generally becomes poorer downstream, although water quality at all three stream gauging and two spring stations exceeds the EPA secondary drinking water standard of 500 mg/l. Surface water quality in Yellow Creek at the White River location has the highest total dissolved solids (TDS), sodium, sulfate, and chloride concentrations.

**Revised text:** Water quality generally becomes poorer downstream, although water quality at all three stream gauging and two spring stations exceeds the EPA secondary drinking water standard for TDS of 500 mg/l. Surface water quality in Yellow Creek at the White River location has the highest total dissolved solids (TDS), sodium, sulfate, and chloride concentrations.

#### **Page 59, par.2 – Surface Water**

*A discussion was added regarding salinity in the Colorado River.*

**Original Text:** Surface water quality near the project area is typically characterized by sodium sulfate and bicarbonate, with moderate salinity levels (TDS concentrations between 500 and 1,500 mg/l) and high to very hard hardness (i.e., hardness as calcium carbonate greater than 121).

**Revised text:** Surface water quality near the project area is typically characterized by sodium sulfate and bicarbonate, with moderate salinity levels (TDS concentrations between 500 and 1,500 mg/l) and high to very hard hardness (i.e., hardness as calcium carbonate greater than 121).

The Colorado River Basin Salinity Control Forum (CRBSCF) is concerned with energy development and the movement of salts downstream in the Colorado River Basin. The CRBSCF was formed to develop interstate cooperation, and to provide the Basin States (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming) with the information necessary to comply with Section 303(a) and (b) of the Clean Water Act. EPA enacted a regulation in December of 1974 that set forth a basin-wide salinity control policy for the Colorado River Basin, and in 1975, the CRBSCF proposed, the Basin States adopted, and the EPA approved water quality standards to control salinity increases in the Colorado River. The nearest downstream water quality standard is below Hoover Dam and is 723 mg/l. Congress enacted the Colorado River Basin Salinity Control Act, Public Law 93-320 1974 Title II-Water Quality Program for Salinity Control, and amended in 1984. This Act directed the BLM to implement a comprehensive program to minimize salt loading in the Colorado River Basin, and coordinate salinity control activities with the CRBSCF, the Basin States, the U.S. Bureau of Reclamation, and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS).

Other federal agencies that participate in the CRBSCF Work Group meetings include the EPA, USFWS, and USGS. In addition, the CDPHE-WQCC Regulation No. 39, Colorado River Salinity Standards, establishes water quality standards for salinity or total dissolved solids for the Colorado River and its tributaries in Colorado, and Regulation 61 discusses the implementation of the provision of Regulation 39 in discharge permits.

#### **Page 60, par.2 – Groundwater**

*Clarification was added on potentiometric head difference.*

**Original Text:** A downward vertical hydraulic gradient was observed at 15 of the 16 well cluster locations. Only well cluster #4-1 (Site 1) showed an upward hydraulic gradient from the L3/L4 up to the L5. A slight but consistent downward vertical hydraulic gradient was observed within the Uinta Transition and Upper Parachute Creek Group down to the top of the R5 interval in 14 of the 16 well clusters.

**Revised text:** A downward vertical hydraulic gradient was observed at 15 of the 16 well cluster locations. Only well cluster #4-1 (Site 1) showed an upward hydraulic gradient from the L3/L4 up to the L5. The potentiometric head difference between the L4 and L5 intervals at this location measured in the summer of 2005 was approximately 65 feet. A slight but consistent downward vertical hydraulic gradient was observed within the Uinta Transition and Upper Parachute Creek Group down to the top of the R5 interval in 14 of the 16 well clusters.

### **Page 66 – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

*Language was added on water wells, reinjection process, and applicable state rules and regulations.*

**Original Text:** The Proposed Action identifies potential impacts to surface and groundwater resources. In order to mitigate potential impacts, BLM would require alternative mitigation measures. Mitigation measures may be modified as additional geologic, hydrologic, and geochemical data obtained by the operator from on-going studies are analyzed. Additional geologic, hydrologic, and geochemical data obtained by Shell would be submitted to the BLM for analysis. All three companies with RD&D leases would work together and with the BLM in development of surface water and groundwater monitoring plans. Development of these monitoring plans could also be coordinated with and receive input from personnel at the Colorado Division of Mines and Geology and the USGS. The water quality parameters and analytes to be monitored and the frequency and locations of monitoring would be developed within this group.

Additional mitigation includes:

Dewatering of the freeze wall interior area prior to heating would occur in both the Upper and Lower Parachute Creek units, which would minimize the hydraulic gradient between the two units during the dewatering phase. The recovered groundwater would be a mixture of water quality for the Upper and Lower Parachute Creek units, and would be reinjected downgradient of the freeze wall using wells completed in the deeper L3 interval (Lower Parachute Creek ) that has a high transmissivity. The injection wells would be permitted with the EPA UIC program for Class V injection wells authorized by rule. Water of appropriate quality would be injected into appropriate zones so that beneficial use classifications are maintained. The water quality of the injected water would be of better quality than the native water in the injection zone (L3).

Any groundwater that enters the production zone during the heating and kerogen recovery phase would be recovered with the hydrocarbons, pumped to the surface, and separated in the process area...

...Given the finite lateral size of the heated zone, it may be possible to inject a low permeability material above the R5 interval during plugging and abandonment of wells in the heated zone.

Once the flushing is completed and the freeze wall is allowed to thaw, drill holes associated with each test site would be plugged and abandoned. Plugging and abandonment would occur over a period of time, as certain holes would continue to be used for monitoring of the freeze hole thawing and related water quality monitoring internal to the freeze wall containment area.

All borings would be plugged and abandoned consistent with applicable state rules and regulations. A Plugging and Abandonment Plan would be developed with BLM, the three RD&D lease companies, and the Colorado Division of Mines and Geology. ...

**Revised text:** The Proposed Action identifies potential impacts to surface and groundwater resources. In order to mitigate potential impacts, BLM would require alternative mitigation measures. Mitigation measures may be modified as additional geologic, hydrologic, and geochemical data obtained by the operator from on-going studies are analyzed. Additional geologic, hydrologic, and geochemical data obtained by Shell would be submitted to the BLM for analysis. All three companies with RD&D leases would work together and with the BLM in development of surface water and groundwater monitoring plans. Although a comprehensive surface water and groundwater monitoring plan will be developed for all three companies operations, the plan will have the flexibility to consider site-specific conditions and to develop site-specific monitoring measures in addition to the regional requirements. Development of these monitoring plans could also be coordinated with and receive input from personnel at the Colorado Division of Mines and Geology and the USGS. The water quality parameters and analytes to be monitored and the frequency and locations of monitoring would be developed within this group. All water wells constructed for purposes of monitoring, dewatering, recharge, injection, and production must comply with CRS 37-90-137 and 37-92-602. All well construction must be in compliance with the Water Well Construction Rules 2CCR-402-2, which may require submittal and approval of a variance from the rules. All wells permitted by the State Engineer must be constructed by a water well construction contractor licensed by the State of Colorado. All permanent pump installations shall be completed by only a pump installation contractor licensed by the State of Colorado or a private pump installer.

Additional mitigation includes:

Dewatering of the freeze wall interior area prior to heating would occur in both the Upper and Lower Parachute Creek units, which would minimize the hydraulic gradient between the two units during the dewatering phase. The recovered groundwater would be a mixture of water quality for the Upper and Lower Parachute Creek units, and would be reinjected downgradient of the freeze wall using wells completed in the deeper L3 interval (Lower Parachute Creek ) that has a high transmissivity. The injection wells would be permitted with the EPA UIC program for Class V injection wells authorized by rule. Water of appropriate quality would be injected into appropriate zones so that

beneficial use classifications are maintained. The water quality of the injected water would be of better quality than the native water in the injection zone (L3). The planned reinjection process will not degrade the existing ground water quality. With regards to TDS, as specified in The Basic Standards for Groundwater (5CCR 1002-41) Table 4, the maximum allowable TDS concentration is 1.25 times the background concentrations for cases where the pre-activity TDS background is between 501 and 10,000 mg/l.

Any groundwater that enters the production zone during the heating and kerogen recovery phase would be recovered with the hydrocarbons, pumped to the surface, and separated in the process area...

...Given the finite lateral size of the heated zone, it may be possible to inject a low permeability material above the R5 interval during plugging and abandonment of wells in the heated zone.

Once the flushing is completed and the freeze wall is allowed to thaw, drill holes associated with each test site would be plugged and abandoned over a period of time. Select wells internal to the freeze wall area would continue to be used for monitoring of the freeze hole thawing and related water quality monitoring internal to the freeze wall containment area, and groundwater monitoring wells located outside of the freeze wall would remain to monitor groundwater quality.

All borings would be plugged and abandoned consistent with applicable state rules and regulations (i.e. Division of Water Resources "Well construction Rules" 2CCR 402-2). A Plugging and Abandonment Plan would be developed with BLM, the three RD&D lease companies, the State Engineers Office, and the Colorado Division of Mines and Geology. ...

**Page 67 – Waters discharged into surface waters would be treated to meet specifications of permits...**

*Punctuation was added.*

**Original Text:** ...The surface drainage system would consist of ditches, storm sewers, culverts, curbs, and paving. Ditches would be lined with riprap or other material where necessary to assure stability. A storm water pond would be designed to retain the runoff and sediment from a 50-year, 24-hour storm event (2.5 inches

**Revised text:** Waters discharged into surface waters would be treated to meet specifications of permits...

...The surface drainage system would consist of ditches, storm sewers, culverts, curbs, and paving. Ditches would be lined with riprap or other material where necessary to assure stability. A storm water pond would be designed to retain the runoff and sediment from a 50-year, 24-hour storm event (2.5 inches).

## **WETLANDS AND RIPARIAN ZONES**

### **Page 72, 2<sup>nd</sup> bullet – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

*Language was added on waters of the U.S.*

#### **Original Text:**

- Obtain a Section 404 permit from the COE for impacts to waters of the U.S. from removal or modification of intermittent stream channels. For approval of the project, the project will need to avoid and minimize impacts to waters of the U.S. to the extent practicable, and compensatory mitigation may be required for unavoidable impacts.

#### **Revised text:**

- Obtain a Section 404 permit from the COE for activities that may require removal or modification of intermittent stream channels classified as waters of the U.S. For approval of the project, the project will need to avoid and minimize impacts to waters of the U.S. to the extent practicable, and compensatory mitigation may be required for unavoidable impacts.

## **SOILS**

### **Page 76, last bullet – Subalternative - Proposed Action with Mitigation – Sites 1, 2, & 3**

*Language was added on spill protection.*

#### **Original Text:**

- Shell will also prepare and implement an SPCC plan for BLM approval aimed at reducing the potential for adverse impacts associated with spills and leaks.

#### **Revised text:**

- Shell will also prepare and implement an SPCC plan for BLM approval aimed at reducing the potential for adverse impacts associated with spills and leaks. All spills must be reported to the CDPHE environmental release and incident reporting line at (877) 518-5608.

## **WILDLIFE, AQUATIC**

### **Page 86, par.5 – Affected Environment**

#### **General**

*New information was added on Colorado River cutthroat trout and flannelmouth sucker*

**Original Text:** The results of fish sampling on Yellow Creek indicated that fish have a very limited distribution in the Yellow Creek drainage (Chadwick 2002)... Speckled dace were the most abundant species; only four mountain suckers were collected in 2002, down 93 percent from Fall 2001 collections (Chadwick 2002).

**Revised text:** The results of fish sampling on Yellow Creek indicated that fish have a very limited distribution in the Yellow Creek drainage (Chadwick 2002)... Speckled dace were the most abundant species; only four mountain suckers were collected in 2002, down 93 percent from Fall 2001 collections (Chadwick 2002). According to CDOW, Colorado River cutthroat trout and flannelmouth sucker also occur in Yellow Creek.

Perennial flowing waters in the Piceance Basin support self-sustaining populations of fish. Piceance Creek supports reproducing populations of flannelmouth suckers, mountain suckers, speckled dace, and brook trout. Other species found in Piceance Creek which may be reproducing include brown trout, rainbow trout, Snake River cutthroat trout, and Colorado River cutthroat/rainbow trout hybrids. The length distribution of Colorado River cutthroat trout taken by electrofishing indicates that natural reproduction is occurring in Black Sulphur Creek, and that adult specimens are able to inhabit the stream over their entire life cycle.

## **WILDLIFE, TERRESTRIAL**

### **Page 94, par. 2 and 3 – Affected Environment**

*Information of summer and winter range was changed based on new information.*

#### **Mammalian Species**

##### **Big Game**

##### **Mule Deer**

**Original Text:** Site 1 is within mule deer winter range; migration routes are northwest and northeast of the site (NDIS 2006).

Site 2 is year round range and severe winter range for mule deer (NDIS 2006).

**Revised text:** Site 1 is within mule deer winter and summer range; migration routes are northwest and northeast of the site (NDIS 2006).

Site 2 is winter range and is adjacent to summer range for mule deer (NDIS 2006).

### **Page 95, par. 1 – Elk**

*Information of summer and winter range was changed based on new information.*

**Original Text:** Elk (*Cervus elaphus*) inhabit pinyon-juniper and upland sagebrush shrubland habitats. Elk use the woodland habitat for cover, but also occur in open areas. The test sites are in elk summer and winter range; winter concentration areas are located

northeast of the test sites (NDIS 2006). The summer range, which includes the three test sites, is considered critical habitat because of the limited availability of summer range for elk that inhabit the Piceance and Douglas creek basins (BLM 1994). Requirements of summer range are a mixture of open shrubland and grassland, water source, and areas of forest for cover. In winter, elk migrate to winter ranges where cover and forage are available.

**Revised text:** Elk (*Cervus elaphus*) inhabit pinyon-juniper and upland sagebrush shrubland habitats. Elk use the woodland habitat for cover, but also occur in open areas. The test sites are in elk winter range; winter concentration areas and migration corridors are located northeast of the test sites (NDIS 2006). The summer range and production areas, which includes Test Sites 1 and 3, is considered critical habitat because of the limited availability of summer range for elk that inhabit the Piceance and Douglas creek basins (BLM 1994). Requirements of summer range are a mixture of open shrubland and grassland, water source, and areas of forest for cover. In winter, elk migrate to winter ranges where cover and forage are available.

### **Page 98, bullets – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

*Mitigation requirements for wildlife were clarified.*

**Original Text:** The Proposed Action identifies potential impacts to terrestrial wildlife, such as loss of habitat and disturbance during breeding season. In order to mitigate potential impacts, BLM would require alternative mitigation measures. Wildlife impacts will be minimized through mitigation as described below.

- Prohibit construction activities in severe/critical mule deer and elk winter range between December 1 and April 30.
- Redistribute large, woody material salvaged during clearing operations so as not to exceed 3 to 5 tons per acre, and mulch excess woody materials.
- Limit fencing on the tract to facilities that otherwise would present a hazard to humans and/or wildlife.
- Seed disturbed areas according to BLM recommendations.
- Support carpooling and establish a policy of reduced vehicular speed, especially at night.
- Ensure that reserve pits are lined, fenced on all four sides with net-wire and covered with plastic barrier to exclude both large and small animals and netted to prevent birds from accessing these pits, and reclaiming the pits as soon as possible after use.

**Revised text:** The Proposed Action identifies potential impacts to terrestrial wildlife, such as loss of habitat and disturbance during breeding season. In order to mitigate potential impacts, BLM would require alternative mitigation measures. Wildlife impacts will be minimized through mitigation as described below.

- Redistribute large, woody material salvaged during clearing operations so as not to exceed 3 to 5 tons/acre, and mulch excess woody materials.

- Limit fencing on the tract to facilities that otherwise would present a hazard to humans and/or wildlife.
- Use wildlife friendly fencing.
- Seed disturbed areas according to BLM recommendations.
- Support carpooling and establish a policy of reduced vehicular speed, especially at night.
- If reserve pits are deemed necessary on site, ensure that pits are lined, fenced on all four sides with net-wire, and covered with plastic barrier to exclude both large and small animals and netted to prevent birds from accessing these pits.

**Page 99, par. 2 – Raptors**

*NSO language was clarified.*

**Original Text:** No surface occupancy will be allowed within 1/2 mile of active nests of threatened, endangered, or BLM sensitive species of migratory birds, including raptors, from February 1 through August 15 (1/8 mile for all non-listed migratory bird species). The BLM will be contacted and USFWS will be consulted if any special status species nests are discovered on or adjacent to the project area.

**Revised text:** No surface occupancy will be allowed within 1/2 mile of active nests of threatened, endangered, or BLM sensitive species of migratory birds, including raptors, from February 1 through August 15 (1/4 mile for all non-listed migratory bird species). The BLM will be contacted and USFWS will be consulted if any special status species nests are discovered on or adjacent to the project area.

**HYDROLOGY AND WATER RIGHTS**

**Page 115, par. 1 – Affected Environment**

*Information was added on stormwater runoff.*

**Original Text:** Precipitation is about 12 inches annually, occurring throughout the year in winter snow showers and summer thunderstorms. Wettest months are March through May with September through October being fairly dry. Most precipitation is lost to evapotranspiration; an estimated 98% of snowmelt and precipitation is lost to evapotranspiration. The remaining water runs off rapidly and replenishes stream flow or recharges the water-bearing zones (Taylor 1987). Approximately 80% of annual stream flows in Piceance Creek originates as discharge from alluvial and bedrock water-bearing zones (Tobin 1987).

**Revised text:** Precipitation is about 12 inches annually, occurring throughout the year in winter snow showers and summer thunderstorms. The wettest months are March through May with September through October being fairly dry. Most precipitation is lost to evapotranspiration; an estimated 98% of snowmelt and precipitation is lost to evapotranspiration. The remaining water runs off rapidly and replenishes stream flow or

recharges the water-bearing zones (Taylor 1987). Approximately 80% of annual stream flows in Piceance Creek originates as discharge from alluvial and bedrock water-bearing zones (Tobin 1987).

**Page 121, new par. after par. 3 – Environmental Consequences of the Proposed Action – Sites 1, 2, and 3**

*Information was added on water rights.*

**Original Text:** Shell is in the process of acquiring additional water rights from the YZ Ranch. These rights are senior and include 70 cfs on the White River. Shell has numerous smaller water rights within the Piceance Basin. An augmentation plan will be submitted for use of groundwater. Shell will provide BLM with a list of water rights including beneficial uses, volume decreed, and relative seniority of individual rights.

**Revised text:** Shell is in the process of acquiring additional water rights from the YZ Ranch. These rights are senior and include 70 cfs on the White River. Shell has numerous smaller water rights within the Piceance Basin. An augmentation plan will be submitted for use of groundwater. Shell will provide BLM with a list of water rights including beneficial uses, volume decreed, and relative seniority of individual rights.

If stormwater runoff is intercepted by this operation and is not diverted or captured in priority, it must be released to the stream system within 72 hours. This may require a discharge permit from CDPHE-WQCD. Otherwise, the operator will need to make replacements for evaporation.

**Page 121, new par. after par. 4 – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

*Information was added on water rights.*

**Original Text:** Prior to the heating phase, groundwater would be extracted from within the hydraulic confines of the freeze wall. ... Currently available information indicates that the three test sites combined would result in stream depletions of less than 100 acre-feet of water annually over the life of the project.

**Revised text:** Prior to the heating phase, groundwater would be extracted from within the hydraulic confines of the freeze wall. ... Currently available information indicates that the three test sites combined would result in stream depletions of less than 100 acre-feet of water annually over the life of the project.

The operator is required to acquire the necessary water rights required for the project prior to the startup of the operation. The applicant will need to document that the water was obtained from a legal source, or the water was diverted in priority under a water right decreed for such use. If out-of-priority depletions must be replaced, a plan for augmentation (or a State Engineer approved substitute water supply plan) may be

required to replace all water depletions in time, place, and amount such that no injury will occur to the vested water rights of others.

Jurisdictional size dams must be approved by the State Engineer prior to construction. For non-jurisdictional size dams, a Notice of Intent to Construct a Non-jurisdictional Water Impoundment Structure must be filed 10 days prior to construction.

## **NOISE**

### **Page 124, mitigation bullets**

*New mitigation requirement was added.*

- Comply with Rio Blanco County noise level standard of 65 dBA.

## **REALTY AUTHORIZATIONS**

### **Page 131, bullets 3 and 5 – Subalternative - Proposed Action with Mitigation – Sites 1, 2, and 3**

*Removed a bullet on permits that was being misunderstood by readers. Removed a bullet on R&PP lease since it has been worked out between Shell and CSU.*

#### **Original Text:**

- The holder would comply with all applicable state and county laws and regulations, and obtain all related applicable permits. This term/condition could be waived by the AO if he/she determines that such state or local law, regulation, or permitting requirement impermissibly conflicts with the achievement of a Congressionally approved use of public lands.
- Necessary revisions to the Proposed Action and to the R&PP lease shall be provided to BLM before the Shell RD&D lease approval.

**Revised text:** None.

## **SOCIOECONOMICS**

### **Page 141, par. 2 – Environmental Consequences of the Proposed Action – Sites 1, 2, & 3**

*New information was added on Shell's proposed man camps.*

**Original Text:** The maximum number of people employed at the site would occur during construction and drilling. ... However, because the three test sites would not be developed at the same time, the number of worker employed during construction and drilling would not be cumulative.

Demand for temporary housing would rise, and would increase even more during hunting season in Rio Blanco County. Housing would still be available, but would be more difficult to find and/or more expensive to secure. Construction workers could have to drive longer distances to locate accommodations. Other demands on local agencies would include increased enforcement activities associate with issuing permits for vehicle load and width limits, emergency medical services to treat injuries resulting from construction activities, and law enforcement services to respond to traffic violations and accidents, landowner complaints, and criminal activities. ...

**Revised text:** The maximum number of people employed at the site would occur during construction and drilling. ... However, because the three test sites would not be developed at the same time, the number of worker employed during construction and drilling would not be cumulative.

Shell presently has 83 existing beds at the “lower camp” temporary living quarter on Corral Gulch. Each bed is housed in a one-bed or two-bed room with a television, closet and necessary furniture. In the temporary living quarters, workers have bath facilities, prepared meals, and light recreational facilities. Construction startup of an additional 104-bed facility is anticipated to begin in October 2006. An additional 400- to 450-bed facility is planned for the 84 Ranch area several miles east of the proposed test sites. This will provide approximately 600 beds in temporary living quarters. The current site has, and future sites will have, adequate capacity to house the temporary construction employees; therefore, they will not generally stay in the towns.

Additionally, the expansion of current offices will continue to allow the growing Shell staff to be officed on-site and not in town. The facilities are or will be on Shell’s private property, and, in order to minimize accident or any disruptions, alcohol is strictly prohibited. Shell will continue to encourage daily van pooling to Rifle, Meeker, and Rangely, thus minimizing road traffic and accidents.

Other demands on local agencies would include increased enforcement activities associate with issuing permits for vehicle load and width limits, emergency medical services to treat injuries resulting from construction activities, and law enforcement services to respond to traffic violations and accidents, landowner complaints, and criminal activities. ...

**POTENTIAL CUMULATIVE EFFECTS**

**Page 150, table – Air Quality**

*The criteria was clarified to read “equal or greater than 1.0 deciview.”*

**Original Text:**

Location	Parameter	Units	Cumulative Impact	Impact Threshold
Flat Tops Wilderness Area	Visibility	Greater than 1.0 deciview (days/year)	13 to 20	More than 1 day/year

**Revised text:**

Location	Parameter	Units	Cumulative Impact	Impact Threshold
Flat Tops Wilderness Area	Visibility	Equal or greater than 1.0 deciview (days/year)	13 to 20	More than 1 day/year

**Page 151, par.1 – Air Quality**

*The criteria was clarified to read “equal or greater than 1.0 deciview.”*

**Original Text:** USFS considers potential visibility impacts within their mandatory federal PSD Class I areas greater than a 1.0 deciview “just noticeable change” from cumulative air pollutant emission sources to be an adverse impact.

**Revised text:** USFS considers potential visibility impacts within their mandatory federal PSD Class I areas equal or greater than a 1.0 deciview “just noticeable change” from cumulative air pollutant emission sources to be an adverse impact.

**PROPOSED ACTION AND SUBALTERNATIVE MITIGATION SUMMARY**

**Page 162, table – Proposed Action and Subalternative Mitigation Summary**

*NOTE: the mitigation changes shown above were also incorporated into the mitigation summary table. Additionally, text for Hydrology and Water Rights was added.*

**Original Text:** None.

**Revised Text:** Proposed Action Design Mitigations:

- Acquire necessary water rights prior to operation startup. Document that water was obtained from a legal source, or was diverted in priority under a water right.
- If out-of-priority depletions must be replaced, a plan for augmentation (or a State Engineer approved substitute water supply plan) may be required to replace all

water depletions in time, place, and amount such that no injury will occur to the vested water rights of others.

- Jurisdictional size dams must be approved by the State Engineer prior to construction. For non-jurisdictional size dams, a Notice of Intent to Construct a Non-jurisdictional Water Impoundment Structure must be filed 10 days prior to construction.

Subalternative Proposed Action with Additional Mitigation:

- Install up- and down-gradient multi-level monitoring wells along tract edges to characterize structure and properties of local aquifers, establish pre-development baseline groundwater conditions, better define the oil shale resource geology, and monitor water quality. Additionally, monitor stream flow in nearby streams and springs. Submit monitoring data to BLM.
- Submit de-watering and re-injection program design to BLM.  
Water that cannot be recycled or otherwise used will be treated to appropriate discharge standards in the process water treatment plant and released to a surface drainage under a Colorado Discharge Permit.

## **Permits, License, and Plans For Shale Oil Research Programs**

*A table listing probable permits was added to the end of the EA.*

### **Federal Permits or Authorizations**

Bureau of Land Management:

- Oil Shale RDD Lease
- Federal Rights-of Way
- NEPA Compliance

Environmental Protection Agency:

- EPCRA Planning and Reporting
- EPCRA Risk Management
- Hazardous Waste Generator Number
- Spill Prevention, Control and Countermeasures (SPCC) Plan
- Underground Injection Control (UIC) (depending on UIC required 6 months to 1 year)

Federal Communication Commission:

- Radio Permit

Department of Transportation

- Hazardous Materials Registration

Occupational, Safety, and Health Administration:

- Process Safety Management

### **State Permits of Authorizations**

Colorado Air Pollution Control Division:

- Air Pollutant Emission Notice (APEN)
- (APEN) Construction Permit

Colorado Department of Labor and Employment:

- Storage Tank Permits

Colorado Division of Minerals and Geology (CDMG):

- 112d-3 Operation Reclamation Permit (4 months up to 1 year)

Colorado Division of Water Resources / Office of the State Engineer:

- Water Well Permits
- Dam Safety Permit
- Water Appropriations

Colorado Water Quality Control Division:

- Colorado Discharge Permit System (CDPS) Permit
- Storm Water Permit – Construction
- Storm Water Permit – Industrial
- Wastewater Permit

### **County Permits and Authorizations**

Rio Blanco County Development Department:

- County Special Use License
- Traffic Management Plan
- Sanitary Wastewater Permit
- Right Of Way Access Permit
- Building Permit
- Open Burn Permit